

USER GUIDE FOR NETmc MARINE *videoTXT*



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Contents

[illegible]

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1 Introduction

NETmc Marine's **videoTXT** is a robust solid state overlay unit – capable of overlaying text onto PAL or NTSC video signals. The **videoTXT** will detect which type of signal is present automatically. Note that if no signal is detected, the **videoTXT** will default to PAL settings.

Housed in a 1U rack mount case – the **videoTXT** is capable of placing text on up to 3 separate unsynchronised video signals. Data can be input via PS2 keyboard or either of the dual serial ports.

Up to 1656 characters* can be displayed on the screen in 4 selectable font sizes and 9 selectable font shades. (*small font 1656 PAL, 1380 NTSC)

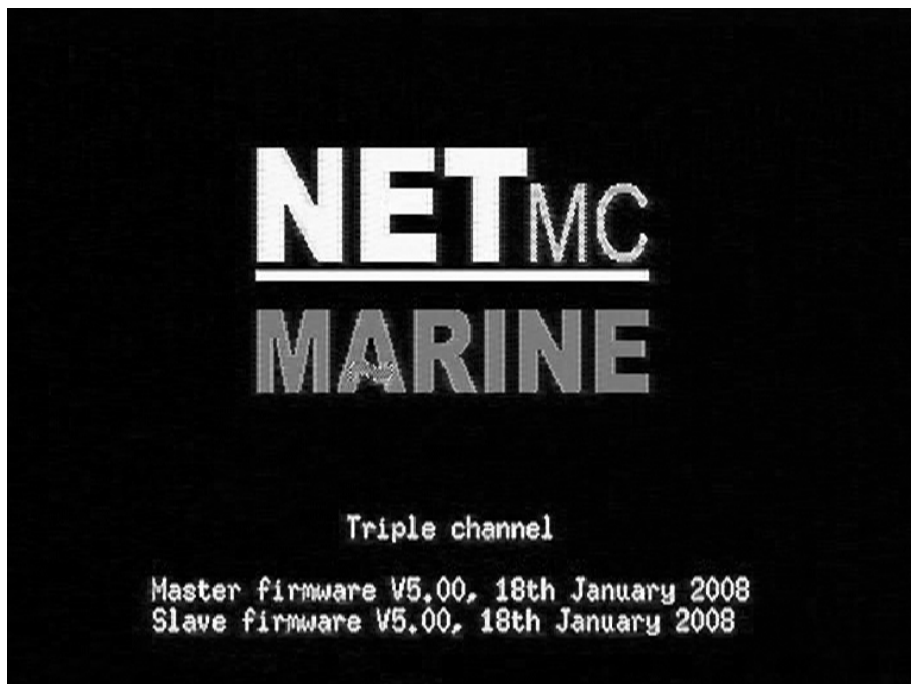
The **videoTXT** has an internal real time clock (RTC) – which allows time and date to be displayed on the screen without being fed from an external source.

The firmware can be updated in situ via serial port 2. Please contact NETmc Marine Support for more details.

Available models / options:

- Single Video channel unit
- Dual Video channel unit
- Triple Video channel unit

Upon powering-up the **videoTXT** the following screen is displayed, confirming which model is present (single, dual or triple channel) and which firmware version the unit is using.



2. Rear connections

No matter which model has been purchased, the back panel will always be populated with 3 sets of BNC connectors. This enables easier upgrading of the unit. Looking at the rear of the unit - the 3 sets of video inputs and outs can be clearly identified:



External data feeds from a navigation or inspection package (e.g. NaviPac / Coabis) can be connected to Serial 1 or Serial 2. The serial inputs are 100% independent – so a “clear screen” command sent on Serial 2 will not delete any text being fed from Serial 1.

NOTE: The keyboard and internal clock output to the same overlay layer as Serial 2: therefore if the keyboard and/or internal clock are to be used, avoid any external inputs to Serial 2.

When making a cable to link between **videoTXT** and a PC – this should be a cross over (null modem) configured as:

PC	videoTXT
2	3
3	2
5	5

Data should be sent to the **videoTXT** as:

- 9600 Baud
- 8 bit
- No parity
- 1 stop bit

3 Serial Command Index - for input via the serial port.

The **videoTXT** command structure follows the established industry standards. A summary of the commands follows:

Compatibility with Taylor Lann / C-Systems

Function	Hex Code	Dec Code	Key Code
Clear Screen	10	16	^P
Cursor Right	11	17	^Q
Cursor Up	12	18	^R
Cursor Down	13	19	^S
Cursor Left	14	20	^T
Home Cursor	15	21	^U
Line Feed	0A	10	^J
Carriage return	0D	13	^M

Where different channels are in use:

- The default setting is: All channels on.
- To send to channel 1 only: Send 07 followed by 01.
- To send to channel 1 and 2 only: Send 07 followed by 03.
- To send to channels 1, 2 and 3: Send 07 followed by 07.
- To send to channel 1 and 3 only: Send 07 followed by 05.
- To send to channel 2 and 3 only: Send 07 followed by 06.
- To disable all channels: Send 07 followed by 00.

Compatibility with Oceantools Systems

Function	Subfunction	Hex Code	Dec Code	Key Code
Clear Screen	n/a	10	16	^P
Cursor Right	n/a	11	17	^Q
Cursor Up	n/a	12	18	^R
Cursor Down	n/a	13	19	^S
Cursor Left	n/a	14	20	^T
Home Cursor	n/a	15	21	^U
Line Feed	n/a	0A	10	^J
Carriage return	n/a	0D	13	^M
Time * (2 bytes must be sent – e.g. 00 followed by parameter)		00	0	
	Set time to Top Centre	01	1	
	Set time to Bottom Centre	02	2	
	Set time to Top Left	03	3	
	Set time to Top Right	04	4	
	Set time to Bottom Left	05	5	
	Set time to Bottom Right	06	6	
	Set time to Off	00	0	
Date * (2 bytes must be sent – e.g. 01 followed by parameter)		01	1	
	Set date to Top Centre	01	1	
	Set date to Bottom Centre	02	2	
	Set date to Top Left	03	3	
	Set date to Top Right	04	4	
	Set date to Bottom Left	05	5	
	Set date to Bottom Right	06	6	
	Set date to Off	00	0	
Font (2 bytes must be sent – e.g. 09 followed by parameter)		09	9	^I
	Set font to small	01	1	^A
	Set font to medium	02	2	^B
	Set font to large	03	3	^C

* Serial port 2 only

4 Keyboard Command Index

The keyboard must be connected to the front of the **videoTXT** prior to power-up.

The **videoTXT** is designed to work with any PS2 keyboard. A USB keyboard used via a PS2 adapter should also work but this has not been tested.

Text can be drawn on the screen by typing on the keyboard in the regular manner. Caps Lock and Shift keys are supported for capital letters and punctuation characters.

Select the position on the screen where the text should appear by using the **arrow keys**.

Backspace is used to erase text

F keys: shortcut keys (see summary below)

ESC takes the user out of the menu system.



Scratch mode

Upon first powering up the unit, “scratch” mode is entered. Text will be displayed on the screen as typed into the keyboard. This text is lost if any other command is carried out (for example entering the menu system) or if the **videoTXT** is switched off.

The font size and shade can be altered using the menu system (via F1) – see below.

The default setting upon power up is that this text is displayed on all channels. Text can be disabled from any one or more channels by using shortcut key commands (see below).

NOTE: In scratch mode (and in this mode only) the “Insert” function on the keyboard has had to be disabled.

Stored text

Four different pages of text can be stored for future use. These are activated by the use of the F5, F6, F7 and F8 shortcut keys.

To set up your stored text:

1: select the text size required using the Control Menu option 3.

2: select the required shortcut key (F5 or F6 or F7 or F8)

3: type in the text required.

The text is recorded automatically and is displayed every time the same shortcut key is pressed. Even if the **videoTXT** is powered off, the text is stored.

It is possible to have different text shades and sizes on each page. These are chosen through the menu system. (Select F4 to return to scratch mode and then F1 to enter the menu system – see below for more details.)

NOTE: changing the text size on a stored page also deletes the text on that page. Changing the text shade can be carried out at any time (before or after the text has been created).

Channel titles:

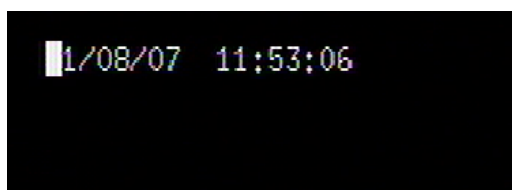
A short title can be set up for display on each screen in use. For example, when a triple channel **videoTXT** is in use, the user could display “Diver 1” on the first screen, “Diver 2” on the second screen and “Diver 3” on the third screen. Channel titles are also retained if the **videoTXT** is powered off.

NOTE: On a single channel overlay only the first title is displayed.

To set up channel titles use option 5 of the Control menu. (See below for more details).

Cursor position:

The cursor flashes at its current position to facilitate keyboard use. This may be on top of time/date (as in the example below) or some text. If the keyboard is not used, the flashing cursor will disappear after approximately 10 seconds.

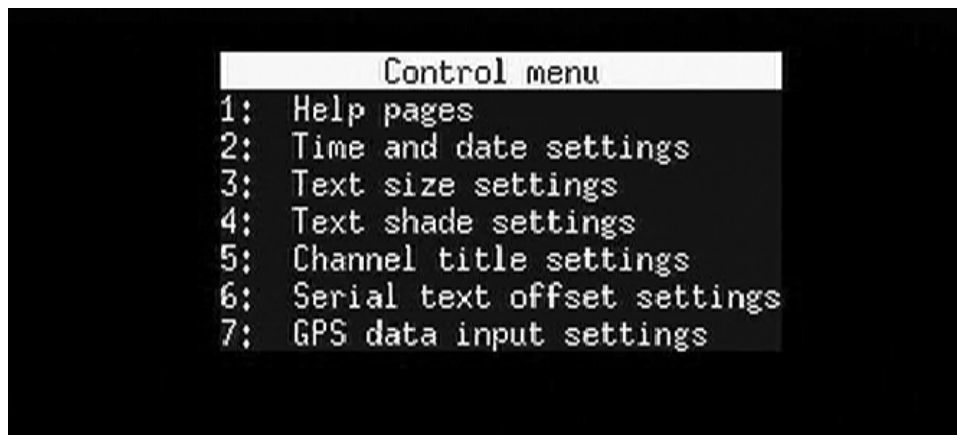


Summary of shortcut key commands:

- F1:** Brings up the Control Menu (see below for more details). Note: This key only functions when in scratch mode.
- F2:** Clears the display; if on a stored page, the page memory will also be cleared.
- F4:** Selects scratch page (freestyle, volatile text)
- F5:** Selects stored page 1
- F6:** Selects stored page 2
- F7:** Selects stored page 3
- F8:** Selects stored page 4
- Ctrl-F5:** Clears stored page 1 (Note: This and the next 3 key commands can be used whichever page the user is currently on.)
- Ctrl-F6:** Clears stored page 2
- Ctrl-F7:** Clears stored page 3
- Ctrl-F8:** Clears stored page 4
- Ctrl-1:** Enables/disables the display of keyboard input on video channel 1
- Ctrl-2:** Enables/disables the display of keyboard input on video channel 2
- Ctrl-3:** Enables/disables the display of keyboard input on video channel 3
- Ctrl-I:** Inserts an empty row at the current cursor position
- Ctrl-D:** Deletes the row at the current cursor position
- Insert:** Toggles between overstrike and insert modes (only available when on a stored page)
- Delete:** Deletes the character underneath the cursor (only available when on a stored page) and moves the remainder of the row to the left.
- Backspace:** Deletes the character to the left of the cursor; if on a stored page, this key moves the remainder of the row to the left
- Return:** Begins a new line on the display
- Cursor keys:** Move the cursor in the direction of the arrows.
- Page up:** Moves the cursor to the upper left of the screen
- Page down:** Moves the cursor to the lower right of the screen
- Home:** Moves the cursor to the start of the current row
- End:** Moves the cursor to the end of the current row

5 Menu Structure

The user can enter the menu system by pressing F1, whilst in scratch mode.

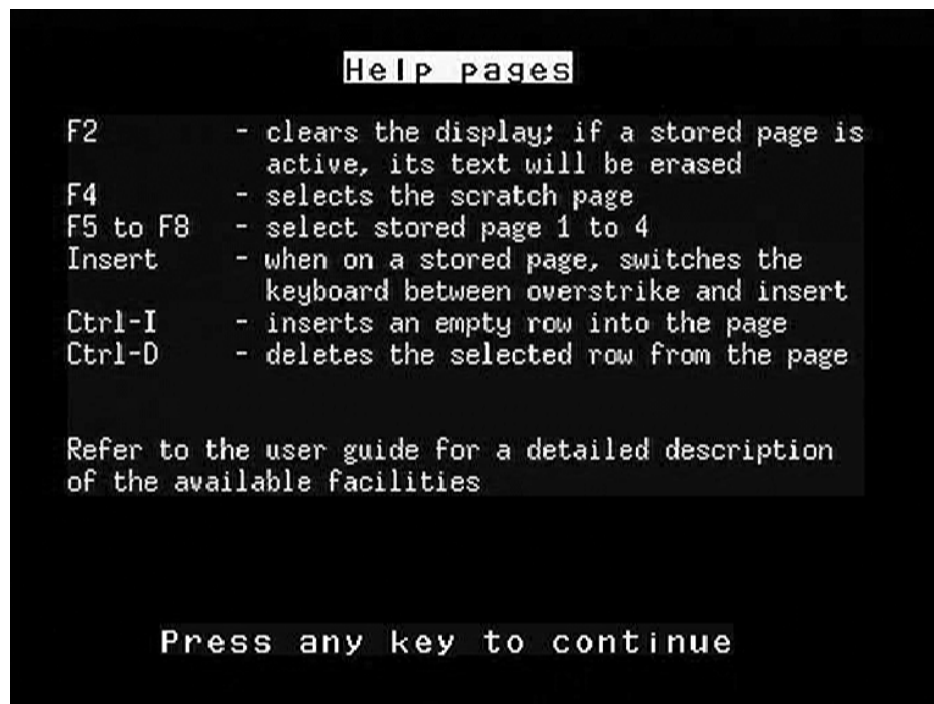


NOTE: The example shows a screen where no input signal is connected. If a signal is connected the menu will be displayed over this signal.

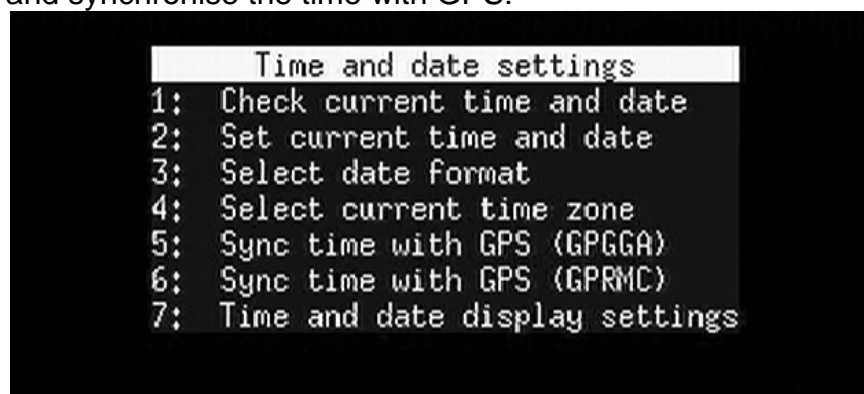
In each menu, type the appropriate number to select that option. Press the Escape key to return to normal display.

The menu options are described below, with screen shots of the pages the user can expect to see.

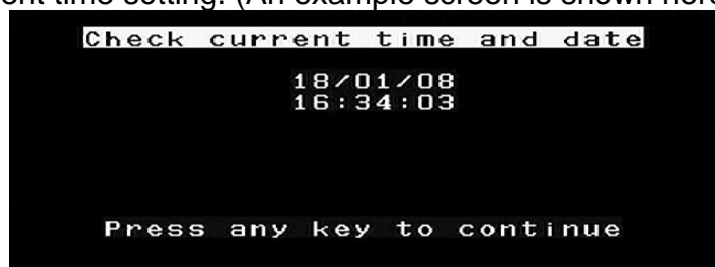
1: Help – contains some basic operational and setup tips



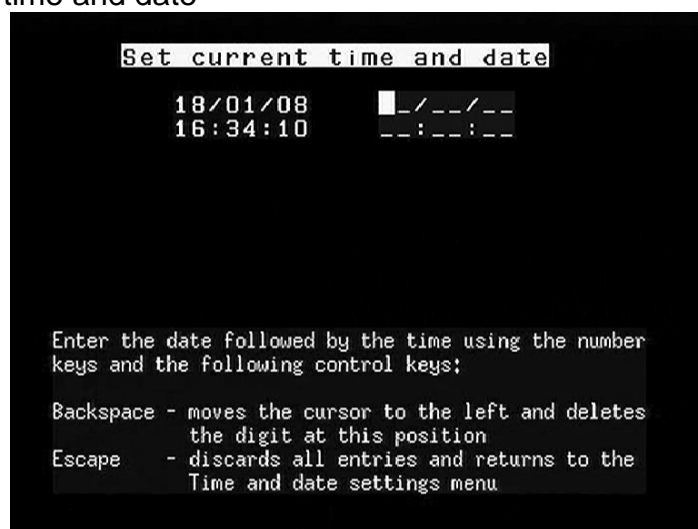
2: Time / Date Settings – Use this menu to change the time on the internal clock, or to change the position of the time and date on screen. It is also possible to select either UK or US date format and synchronise the time with GPS:



Option 1: Check current time setting. (An example screen is shown here)



Option 2: Set current time and date



Option 3: Select date format



Once a format has been selected, the user will see a screen similar to the one below:

```
Select date format
1: Select UK Format (dd/mm/yy)
2: Select USA Format (mm/dd/yy)

Selected date format is UK

Press Return to accept the changes
Press Escape to cancel
```

Option 4: Select current time zone.

This will be necessary if you wish to synchronise the time with a GPS signal. Examples are shown below.

```
Select current time zone

Time zone is UTC

Specify the time zone which will be used when
synchronising the overlay's internal clock with the
time reported by the GPS unit. The control keys are:

Cursor up/down - increment/decrement the interval to
                  be added to/subtracted from UTC to
                  obtain the local time in your zone
Return          - saves the new settings to memory
Escape          - discards all changes and returns to
                  the Time and date settings menu
```

```
Select current time zone

Time zone is UTC - 01h 00m
```

```
Select current time zone

Time zone is UTC + 01h 45m
```

Option5: Sync time with GPS (GPGLA)

Option6: Sync time with GPS (GPRMA)

Notes on the 2 GPS systems: the GGA signal is available almost everywhere but the signal carries only the time and not the date therefore the date may need to be correctly manually. The RMC signal carries both the date and the time, but depending on the location of the vessel, may not be available.

NOTE: Before synchronising the time with the GPS signal, the GPS data input must be enabled. Therefore if the following message appears, return to Option 7 of the Control Menu.

```
Sync time with GPS (GPGGA)

ERROR: This function can only be
used when serial port 2 has been
configured to accept input from
a GPS unit via the menu.

Press any key to continue
```

Once correctly selected, either of the following screens appears showing that synchronisation with GPS is in progress:

```
Sync time with GPS (GPGGA)

Trying to sync time with GPS...
Press Escape to cancel

NOTE: The date cannot be obtained from the GPS unit
using GPGGA information. This function will try to
ensure that the correct date is maintained when the
time in your time zone crosses midnight but you
should always check and if necessary adjust the date
manually afterwards. If possible, you should use
GPRMC information to synchronise the overlay as this
allows the date to be set by the GPS unit itself.
```

or

```
Sync time with GPS (GPRMC)

Trying to sync time with GPS...
Press Escape to cancel
```

Once synchronisation is in place, a screen similar to the ones below will appear:

```
Sync time with GPS (GPGGA)

22/01/08
16:54:33

Press any key to continue
```

or

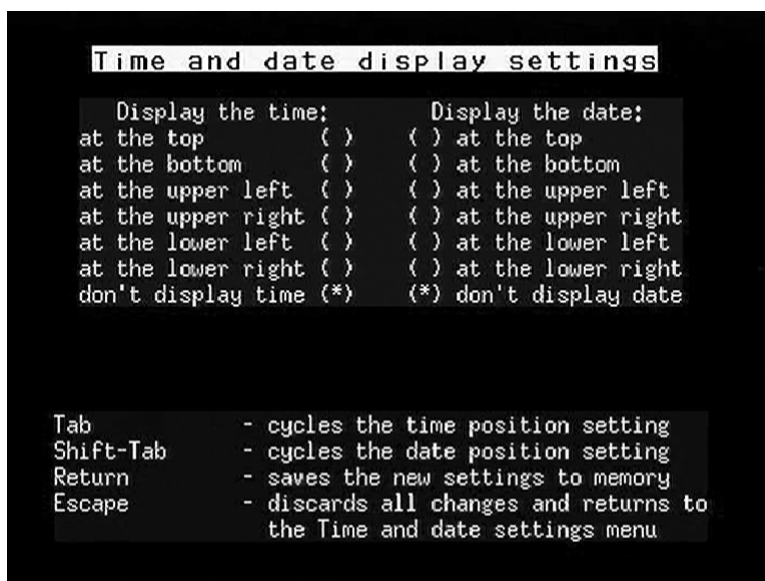
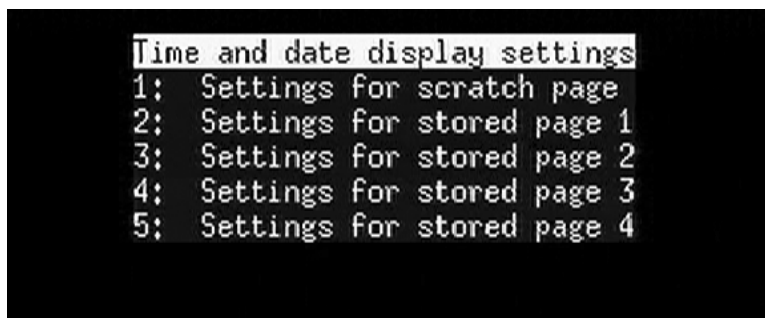
```
Sync time with GPS (GPRMC)

22/01/08
16:55:02

Press any key to continue
```

Option 7: Time and date display settings

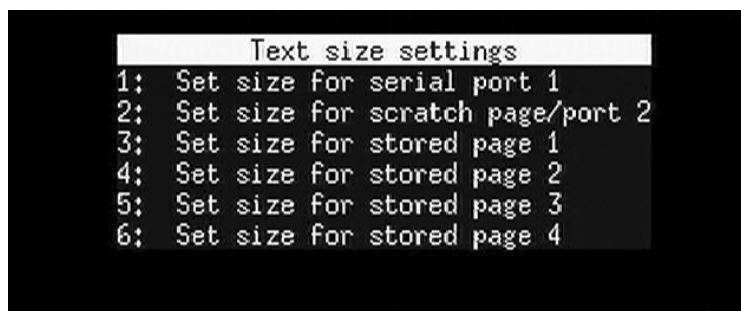
Time and date can be displayed in different positions on the scratch and on each of the four stored pages.



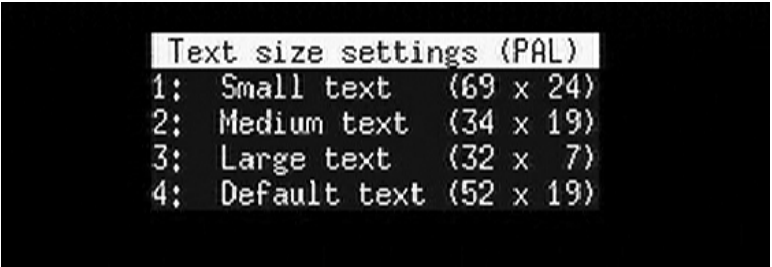
3. Text size settings

It is possible to set different text sizes for the scratch page and for each of the four stored pages:

NOTE: Changing the text size on a stored page also deletes the text on that page. Therefore it is important to choose the text size first and then set up the page with the required text.



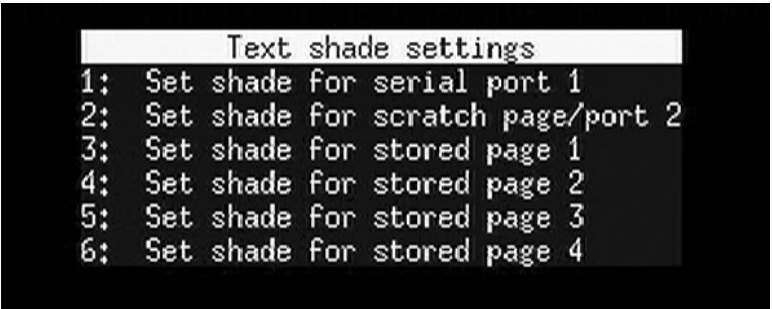
Choose which page you wish to set the text size for, then select the size required from the options below: If you are using an NTSC signal the appropriate sizes will be displayed for this signal.)



For reference, the four sizes available are:

		<u>PAL</u>	<u>NTSC</u>
Small font:	69 columns	24 rows	20 rows
Default font:	52 columns	19 rows	16 rows
Medium font:	34 columns	19 rows	16 rows
Large font:	32 columns	7 rows	6 rows

4: Text shade settings. Again, separate shades can be selected for the scratch and each of the four stored pages.



Examples of the 9 text shades available are shown below:



Note: the example shown is on a striped background to best display the range of shades in this printed manual.

When the number corresponding to each text shade is typed, the relevant font shade is immediately shown on screen. Some examples of these fonts shown over a video signal are as follows:

1. Normal white text



4. Bold black



5. White on black background



6. Black on white background



7. Outlined white text



8. Outlined black text



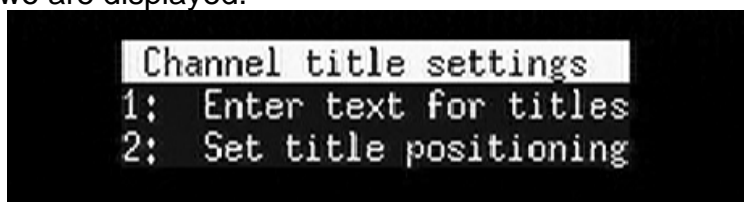
9. White on transparent



5: Channel title settings

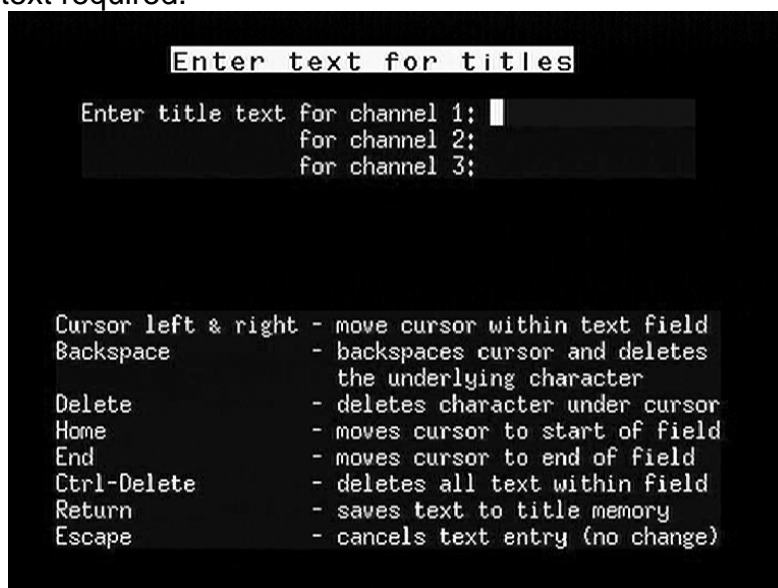
This option enables brief titles to be set up which will be displayed on each separate screen.

NOTE: All 3 titles will only be displayed when a triple channel overlay is in use. With a single channel overlay, only the first title (text one) will be displayed; with a dual channel overlay only texts one and two are displayed.

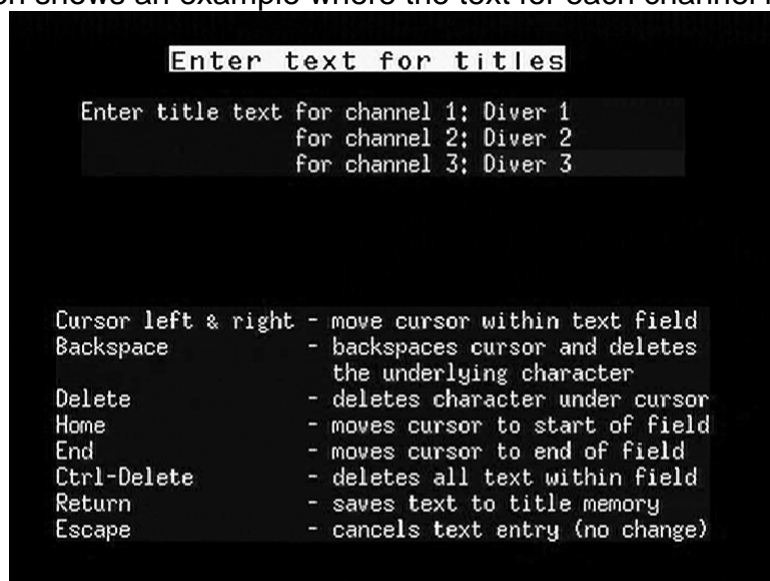


Option 1: Enter text for titles

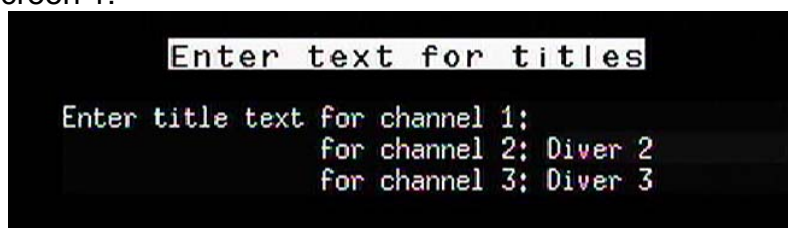
Simply type in the text required.



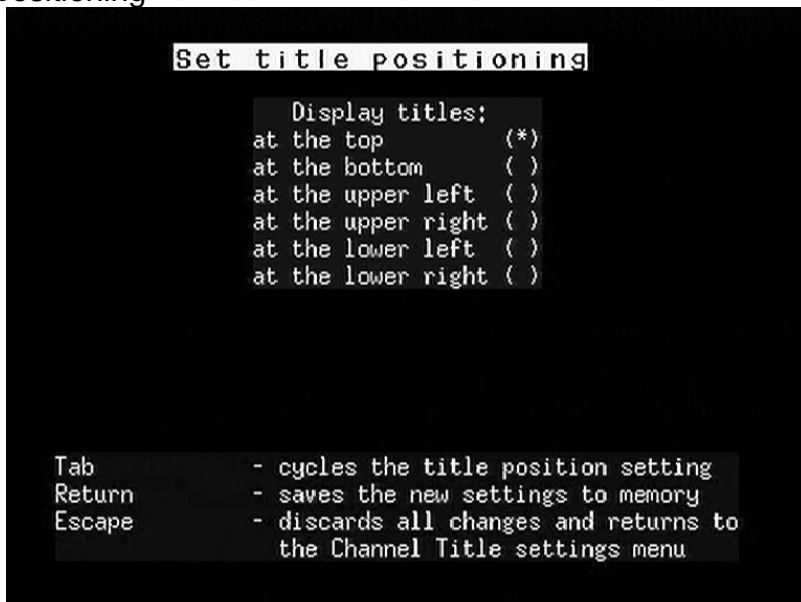
The following screen shows an example where the text for each channel has been entered:



Channel titles are displayed on all screens. To delete the title on any screen, simply delete the text for the relevant channel on the above menu screen. In the example below no title has been set for Screen 1:



Option2: Set title positioning

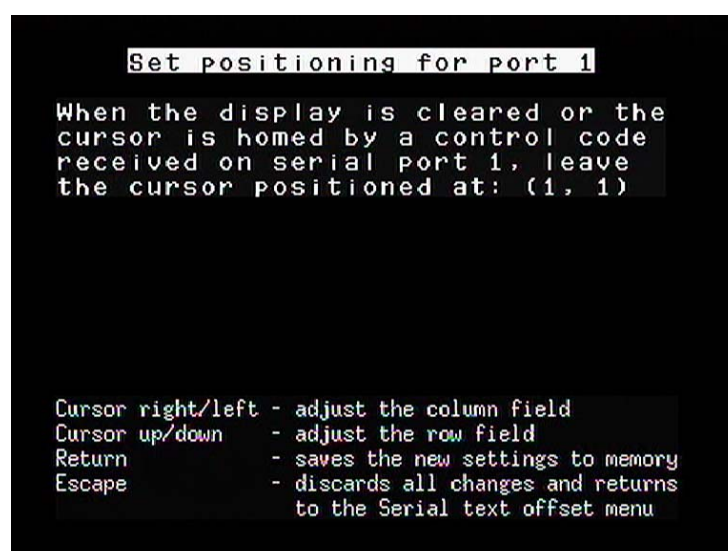
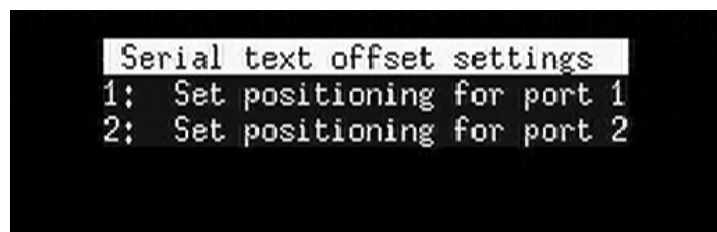


The following screen shows an example of a scratch page with the channel title enabled.



6: Serial text offset settings

This option enables the user to position the text being sent to the **videoTXT** via either of the serial ports. This is useful if you cannot change how your serial string device outputs its data.



Examples of this screen where the positioning has been changed are shown below:

```
Set positioning for port 1

When the display is cleared or the
cursor is homed by a control code
received on serial port 1, leave
the cursor positioned at: (1, 5)
```

```
Set positioning for port 1

When the display is cleared or the
cursor is homed by a control code
received on serial port 1, leave
the cursor positioned at: (5, 1)
```

7: GPS data input settings

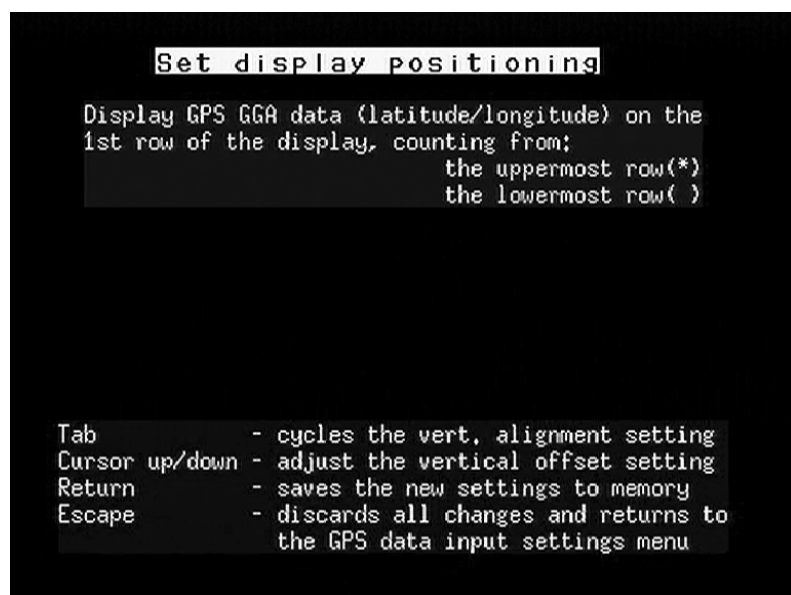
If you have a GGA compliant GPS signal available, it can be input to serial 2 and enabled using this menu, to display latitude and longitude on screen.

NOTE: GPS data should be 4800,8,N,1)

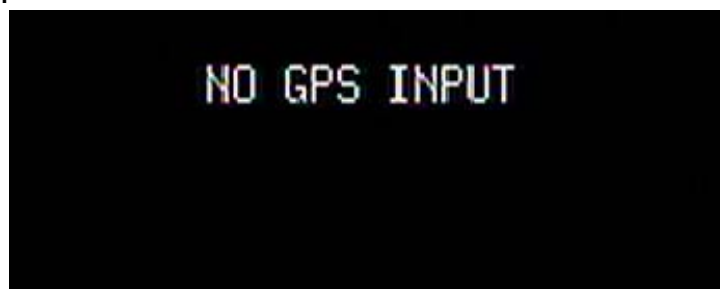
```
GPS data input settings
1: Enable GPS GGA display
2: Disable GPS GGA display
3: Set display positioning
```

An example of a GPS display is shown below:

```
57° 30,6967' N    2° 12,8873' W
```



NOTE: Should the GPS signal disappear for 4 seconds or more the following warning message will appear:

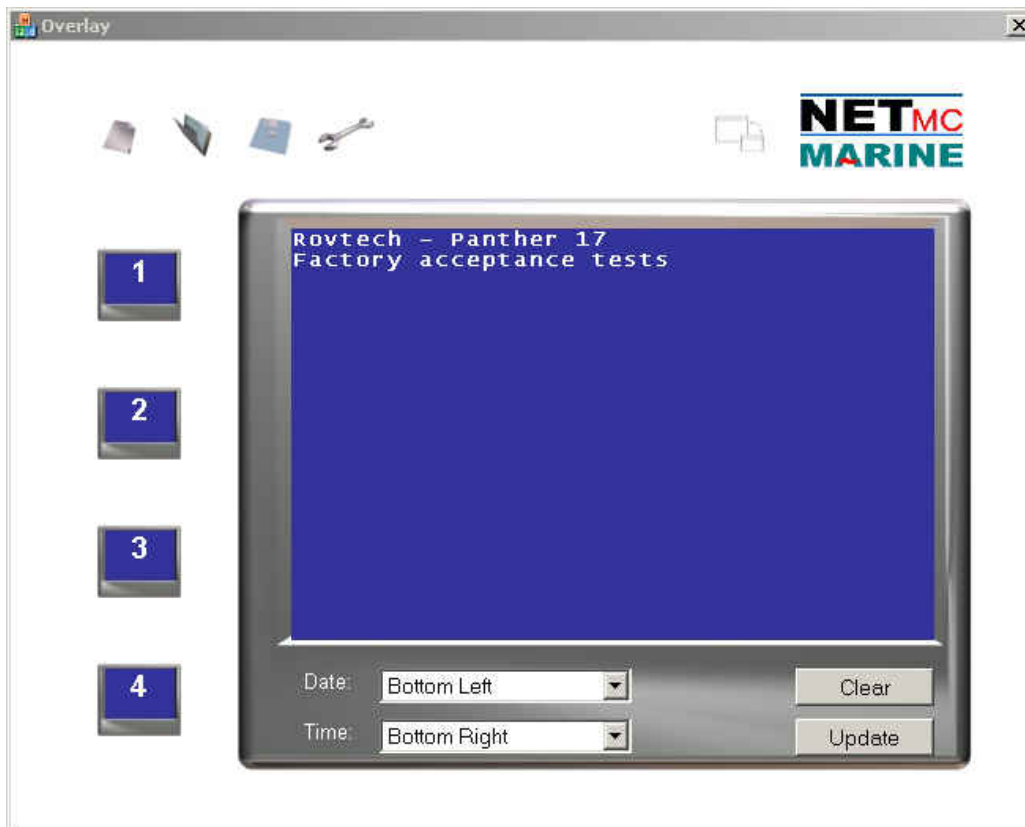


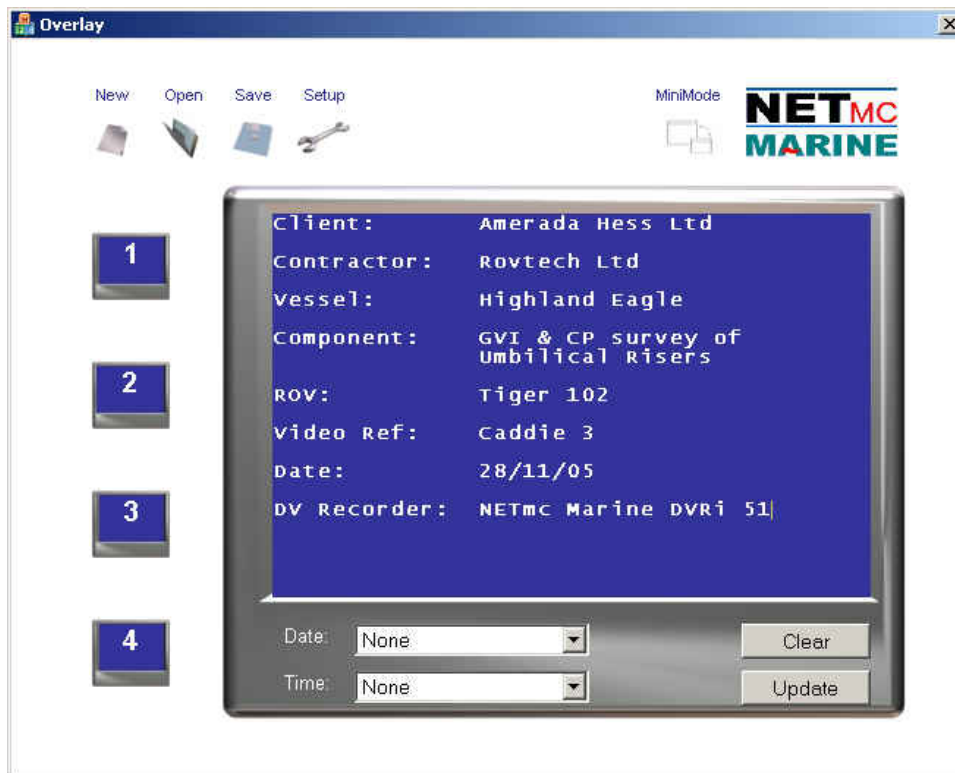
6 Overlay Manager

The **videoTXT** is shipped with NETmc Marine's Overlay Manager software, which can be used to control the overlay remotely from a PC connected to the overlay's serial port. The software is also available as a download from our website www.netmcmarine.co.uk. This software can be installed on any PC with a serial port.

Overlay Manager allows the time/date to be generated from the PC – which may make it easier to synchronise clocks. It also allows the user to type-set his page of text before actually seeing it displayed on the video screen which can be very useful if the video is being recorded live.

Overlay manager also allows multiple screens of data to be configured and toggled between – e.g. header pages and normal running page. Additionally, all the pages can be saved to disk – so operators can have sequences of custom pages saved on disk for each client – saving editing or retying between jobs.





7 Troubleshooting

Symptom: Text not stable / appearing to move up and down screen.

Cause: Poor video input signal

Some element of the video signal must be out-of-spec, e.g. peak-peak voltage, DC offset, sync pulse etc.

VCR footage

Stability can also be an issue if trying to apply overlay to footage acquired on a VCR.

Cure: Clean up the signal – check for bad connections, double terminations. If possible use a time base corrector.

An isolation transformer may be desirable – especially Seaeye ROVs benefit greatly from an in-line isolation transformer.

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

End of Document